

ABSTRACT OF THE DISCLOSURE

A memory module includes a plurality of integrated memory components are arranged on a mounting substrate and a refresh control circuit arranged separately from the memory components on the mounting substrate. The output of the refresh control
5 circuit is connected to the plurality of integrated memory components. The refresh control circuit receives and processes address or command signals which have been generated outside the memory module; based on the access information obtained therefrom, independently generates a refresh command or a refresh command sequence for refreshing the contents of memory cells in a selected one of the memory components; and
10 transmits the command or command sequence to the selected memory component. Refresh commands of this type no longer have to be generated by a memory controller.